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EXAMINER

CHAN, SING P

ART UNIT PAPER NUMBER

1734

DATE MAILED: 11/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/089,470

Applicant(s)

DIGGINS ET AL

Examiner

Sing P Chan

Art Unit

1734

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 41-80 is/are pending in the application.
- 4a) Of the above claim(s) 78 and 79 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 41-77 and 80 is/are rejected.
- 7) ☒ Claim(s) 50,51,57,70, and 80 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 03/20/02.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Election/Restrictions

1. Claims 78 and 79 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on September 29, 2004.
2. Applicant's election with traverse of group I, claims 41-77 and 80 in the reply filed on September 29, 2004 is acknowledged. The traversal is on the ground(s) that the claims of group II are believed to be related to a single inventive concept and properly examinable with group I. This is not found persuasive because group II recites an article or optical element or ophthalmic lens, although the claims depends on the method of claim 41, however, the article or optical element or ophthalmic lens can be formed by other different methods and a the special technical feature is known. Therefore, a lack of unity of invention is maintained.

The requirement is still deemed proper and is therefore made FINAL.

Claim Objections

3. Claim 80 is objected to under 37 CFR 1.75(c) as being in improper form because a dependent claim cannot depend on a canceled claim. See MPEP § 608.01(n). For the purpose of examination, the examiner will assume claim "41" as the dependency.
4. Claims 50 and 57 are objected to because of the following informalities: In claim 50, on line 3, "taht" is a typo and should be "that," and in claim 57, on line 4, "pilisiloxane" is a typo and should be "polysiloxane." Appropriate correction is required.

5. Claims 50 and 51 are objected to because of the following informalities: Markush language is improper, in line 5 of the each claim, "or" should be "and."
6. Claim 70 is objected to because of the following informalities: In line 3, there should be an "an" after (iii).

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
8. Claims 58, 62, and 74 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
9. Regarding claim 58, the claim recites "coating subsequent layers over the second coating layer." However, claim 41 requires the second layer to coreact with the organic liquid material, it is unclear how does this occur if there is a coating over the second coating layer. For the purpose of examination, "coating subsequent layers over the optical element" will be assumed.
10. Claim 62 recites the limitation "the coating resin" in line 3. There is insufficient antecedent basis for this limitation in the claim.
11. Regarding claim 74, the claim recites "an anti-reflection stack of layers" between the first and second layer. However, claim 41 required the second layer to react with first layer, i.e. abrasion resistant coating layer, it is unclear how does this occur. For the

purpose of examination, "coating an anti-reflection stack of layers over the optical element" will be assumed.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 41-54, 58-60, 63-69, 72, 73, 77, and 80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mase et al (U.S. 5,693,366) in view of Soane et al (U.S. 5,733,483).

Regarding claims 41 and 80, Mase et al discloses a method of forming a plastic lens. The method includes providing a lens substrate, coating the surface of the substrate with a primer layer, curing or drying the primer layer, coating the primer layer with a hard coat layer, i.e. abrasion resistant layer, curing the hard coat. (Col 4, lines 1-62) Mase et al does not disclose coating the layers onto a mould in the reverse order and after forming the coating layers, filling the mould with lens forming material and curing and forming the lens. However, coating the layers onto a mould in the reverse order and after forming the coating layers, filling the mould with lens forming material and curing and forming the lens are well known and conventional as shown for example by Soane et al. Soane et al discloses a method of forming optical elements, i.e. lens. The method includes providing a mold and coating with the optical coating in the

reverse order and the desired liquid optical material is supplied to the mold and cured or solidified. (Col 4, lines 14-20, Col 5, line 61 to Col 6, line 12, and Col 8, lines 57-64)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a mold and coating the optical coating to the mold and injecting the liquid optical material into the mold and curing the material to form the coated lens as disclosed by Soane et al in the method of Mase et al to allow the transfer of optical coatings at a different location and time and reducing handling time and costs. (Col 2, lines 53-67)

Regarding claim 42, Mase et al is silent as to the first coating layer is applied to the casting face of the mould so as to completely cover the casting face. However, coating the first coating layer to the casting face of the mould so as to completely cover the casting face is well known and conventional as shown for example by Soane et al. Soane et al discloses the all the coatings are applied to the mold by spin coating or dipping, which completely cover the casting face. (Col 5, lines 40-47, Col 5, lines 54-60, Col 6, lines 39-43)

It would have been obvious to one of ordinary skill in the art at the time the invention was made coat the mold face completely as disclosed by Soane et al in the method of Mase et al provide a very uniform coating on the mold. (Col 4, lines 58-67)

Regarding claim 43, Mase et al discloses after the layer is cured, which is considered to be a film and is insoluble is immersed in a hard coat solution and is considered to be aberration-free. (Col 5, lines 16-30)

Regarding claim 44, Mase et al is silent as to the partial curing the coating. However, partial curing of the coating is well known and conventional as shown for example by Soane et al. Soane et al discloses coating and curing the coatings to the affective degree of crosslinking for storing and shipping for later use. (Col 10, lines 10-29)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to partially curing the coating as disclosed by Soane et al in the method of Mase et al to provide unreacted groups in the coating layer available for future crosslinking with the optical material. (Col 10, lines 27-29)

Regarding claim 45, Mase et al discloses the curing or drying is performed at 110°C to 130°C and 15 to 19 minutes. (Col 4, lines 1-10)

Regarding claims 46 and 47, coating layer as disclosed by Mase et al is considered to contain an unsaturated monomer range of 30 to 90% or 55% to 70%.

Regarding claims 48 and 49, Mase et al discloses the curing or drying is initiated by heating, ultraviolet light irradiation, and electron beam irradiation. (Col 4, lines 53-62)

Regarding claims 50-52, Mase et al discloses the coating layer includes glycidoxypopyltrimethoxysilane or methacroyloxypropyltrimethoxysilane, which is considered to form network by ring opening of the glycidoxy portion. (Col 4, lines 22-37)

Regarding claims 53 and 54, Mase et al discloses the coating includes a solvent and curing is considered to include removal of the solvent by heating. (Col 4, lines 44-62)

Regarding claims 58-60, Mase et al discloses additional coating of anti-reflection coatings after the primer and hard coating has been applied. (Col 4, line 65 to Col 5, line 8)

Regarding claims 63-67, Mase et al discloses the hard coating is comprised polysiloxane resin, (Col 4, lines 21-38) but is silent as to the intermediate coating is comprised of methacryl silane. However, providing an intermediate coating comprising of methacryl silane such as methacryloxypropyltrimethoxysilane is well known and conventional as shown for example by Soane et al. Soane et al discloses a coupling agent, i.e. intermediate coating, comprising methacryloxypropyltrimethoxysilane and is considered to contain in the amount ranged from 30% to 100 by weight. (Col 6, lines 39-43)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide methocryloxypropyltrimethoxysilane as the intermediate coating as disclosed by Soane et al in the method of Mase et al to allow the transfer of optical coatings at a different location and time and reducing handling time and costs. (Col 2, lines 53-67)

Regarding claims 68 and 69, Mase et al discloses the hard coating has a thickness of 2 to 5 μm . (Col 4, lines 63-64)

Regarding claims 72 and 73, Mase et al discloses the primer or second coating has a thickness of 0.05 μm to 5 μm . (Col 4, lines 11-14)

Regarding claim 77, Mase et al discloses the hard coat layer includes colloidal silica with an average particle size of 50 to 200 Å, which is 5 to 20 nm in diameter. (Col 4, lines 21-31)

14. Claims 55-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mase et al (U.S. 5,693,366) in view of Soane et al (U.S. 5,733,483) as applied to claim 41 above, and further in view of LaLiberte et al (U.S. 4,273,809).

Mase et al as modified above by Soane et al is silent as to further post-cure the organic liquid material to ensure complete curing of the coating material. However, post-curing the optical material is well known and conventional as shown for example by LaLiberte et al. LaLiberte et al discloses a method of casting resin lenses. The method includes a post-curing the lens material by removing the partially cured lens from the mold and heating in a post cure oven at approximately 200°F or 93.33°C for one to three hours to produce desirable final polymerization of the lenses. (Col 2, lines 17-44)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to remove the partially cured lens from the mold and heating to post cure the lens material to form the final polymerized lens as disclosed by LaLiberte et al in the method of Mase et al as modified by Soane et al to allow ease separation of the lens material from the mold and to prevent breakage of the molds at separation. (Col 1, lines 9-19)

15. Claims 61, 62, 70, and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mase et al (U.S. 5,693,366) in view of Soane et al (U.S. 5,733,483) as applied to claim 41 above, and further in view of Singh et al (U.S. 5,204,126).

Mase et al as modified above is silent as to the mould surface includes mold release agent in the form of a silane or fluorochemical treatment. However, providing mold with release agent by treating the surface with silane or fluorochemical is well known and conventional as shown for example by Singh et al. Singh et al discloses method of forming an ultra thin release films on the mold surfaces. The method includes forming a film with fluorinated alkyl group or silane or siloxane onto the surface of the mold surface, (Col 4, lines 48-59) and the film has a thickness of not more than 0.5 μm or not more than 10 nm. (Col 7, lines 23-30)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide very thin silane or fluorochemical film as a release agent to the mold surface as disclosed by Singh et al in the method of Mase et al as modified by Soane et al to allow the casting of the optical lenses to be easily release from the surface of the mold without damaging the lens. (Col 1, lines 50-55)

16. Claims 74-76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mase et al (U.S. 5,693,366) in view of Soane et al (U.S. 5,733,483) as applied to claim 41 above, and further in view of Takamizawa et al (U.S. 5,096,626).

Mase et al as modified above is silent as to the anti-reflection layers includes stack of layers with a cumulative thickness ranged from 0.5 μm to 20 μm or 1.5 μm to 5 μm with alternate high and low refractive index layers. However, providing anti-reflection layers as a multi-layers with a cumulative thickness ranged from 0.5 μm to 20 μm or 1.5 μm to 5 μm with alternate high and low refractive index layers on the first and second coating layers is well known and conventional as shown for example by

Art Unit: 1734

Takamizawa et al. Takamizawa et al discloses forming anti-reflecting film as multi-layers having different indices of refraction varied in the direction of the thickness film and the thickness of the film can be adjusted by selection of a solvent or a coating method, which is considered to be any desired thickness and includes 0.5 μm to 20 μm or 1.5 μm to 5 μm . (Col 6, lines 23-37)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide anti-reflecting film as multi-layers having different indices of refraction varied in the direction of the thickness film and the thickness of the film can be adjusted by selection of a solvent or a coating method, which is considered to be any desired thickness and includes 0.5 μm to 20 μm or 1.5 μm to 5 μm as disclosed by Takamizawa et al in the method of Mase et al as modified by Soane et al to provide hard coat film and anti-reflecting film with excellent adhesion between the lens and film with no defects. (Col 2, lines 5-13)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sing P Chan whose telephone number is 571-272-1225. The examiner can normally be reached on Monday-Friday 7:30AM-11:00AM and 12:00PM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher A Fiorilla can be reached on 571-272-1187. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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